

**IN THE CLAIMS:**

1 1. (Currently amended) A system for managing ink information in a computer system  
2 having a pen-based input tablet, the system comprising:  
3 a pen driver coupled to the pen-based input/display tablet and configured to col-  
4 lect and organize the ink information entered at the pen-based input tablet into ink  
5 strokes;  
6 an ink memory area organized into one or more ink phrase data structures; and  
7 an ink manager coupled to the pen driver for receiving the ink strokes, the ink  
8 manager having an ink phrase termination engine configured to examine the ink informa-  
9 tion collected by the pen driver and, upon detecting the occurrence of an ink phrase ter-  
10 mination event, to identify a respective end of an ink phrase to the ink manager,  
11 whereby the ink information entered at the pen-based input tablet is associated  
12 with a client application, and  
13 the ink manager stores the ink strokes received prior to the ink phrase termination  
14 event in a selected ink phrase data structure and, in response to receiving from the client  
15 application a reference context affiliated with the un-recognized ink strokes of the ink  
16 phrase, associates the reference context with the ink strokes.

1 2. (Currently amended) The system of claim 1 wherein  
2 ~~the ink information entered at the pen-based input tablet is associated with a client~~  
3 ~~application, and~~  
4 the ink manager, in response to the occurrence of an ink phrase termination event,  
5 is configured to pass the un-recognized ink strokes of the respective ink phrase to the cli-  
6 ent application.

1 3. (Canceled)

1 4. (Previously presented) The system of claim 1 wherein the ink manager associates the  
2 reference context with the un-recognized ink strokes by appending the reference context  
3 to the selected ink phrase data structure.

1 5. (Original) The system of claim 2 wherein the ink phrase termination engine is config-  
2 ured to initiate a time-out for each ink stroke and further wherein the termination engine  
3 identifies the occurrence of an ink phrase termination event when the time-out expires  
4 before the next sequential ink stroke is detected.

1 6. (Original) The system of claim 5 wherein the time-out has a value that is settable by a  
2 user of the computer system.

1 7. (Original) The system of claim 5 wherein the pen-based input tablet has a surface and  
2 the ink information generated by the tablet includes out-of-proximity data corresponding  
3 to the pen being lifted above the surface of the tablet, and further wherein the termination  
4 engine detects the occurrence of an ink phrase termination event upon detecting out-of-  
5 proximity data from the tablet.

1 8. (Original) The system of claim 2 further comprising:  
2 one or more handwriting recognition engines for generating hypotheses based on  
3 the ink information entered at the pen-based tablet; and  
4 a handwriting recognition manager coupled to both the ink manager and the one  
5 or more handwriting recognition engines, the handwriting recognition manager config-  
6 ured and arranged to coordinate operation of the one or more handwriting recognition  
7 engines, wherein  
8 the ink strokes received at the ink manager are passed to the handwriting  
9 recognition manager, and  
10 the ink manager notifies the handwriting recognition manager of the oc-  
11 currence of each ink phrase termination event and, in response, the handwriting

12 recognition manager directs a selected handwriting recognition engine to generate  
13 one or more hypotheses for the ink strokes corresponding to the respective ink  
14 phrase.

1 9. (Original) The system of claim 8 wherein the handwriting recognition manager in co-  
2 operation with the selected handwriting recognition engine employs a word segmentation  
3 model to the ink strokes as they are received by the ink manager and, in response to de-  
4 termining that a given ink stroke represents a new word, is permitted to issue an ink  
5 phrase termination signal to the ink manager.

1 10. (Original) The system of claim 8 wherein  
2 the client application is configured to define at least one data entry field for dis-  
3 play on the tablet and to establish corresponding boundary coordinates for the at least one  
4 data entry field, and  
5 the termination engine identifies the occurrence of an ink phrase termination  
6 event when an ink stroke or portion thereof is outside of the boundary coordinates for the  
7 at least one data entry field.

1 11. (Original) The system of claim 8 wherein the one or more hypotheses are provided to  
2 the client application.

1 12. (Original) The system of claim 8 wherein the ink manager  
2 in response to receiving from the client application a reference context affiliated  
3 with the un-recognized ink strokes of the ink phrase, associates the reference context with  
4 the ink strokes, and  
5 in response to a request by the client application, returns the affiliated reference  
6 context to the client application together with the one or more hypotheses.

1 13. (Original) The system of claim 8 wherein, in response to receiving an indication that  
2 the client application has consumed the un-recognized ink strokes, the ink manager di-  
3 rects the handwriting recognition manager not to generate one or more hypotheses for the  
4 ink strokes.

1 14. (Original) The system of claim 8 wherein  
2 in response to receiving the un-recognized ink strokes, the client application es-  
3 tablishes a corresponding recognition context for the ink strokes, and  
4 the handwriting recognition manager receives the recognition context and directs  
5 the selected handwriting recognition engine to utilize the recognition context in generat-  
6 ing the one or more hypotheses.

1 15. (Original) The system of claim 14 wherein the one or more hypotheses generated by  
2 the selected handwriting recognition engine utilizing the recognition context from the cli-  
3 ent application are provided to the client application.

1 16. (Currently amended) A method for managing ink information in a computer system  
2 having a pen-based input tablet that may include an integrated display for generating ink  
3 information as a pen is moved across the tablet, the method comprising the steps of:  
4 receiving the ink information generated by the input tablet;  
5 identifying when the pen is lifted from the tablet so as to organize the ink infor-  
6 mation into corresponding ink strokes; ~~and~~  
7 organizing the ink strokes into one or more ink phrases as defined by one or more  
8 ink phrase termination events; and  
9 in response to receiving a reference context from a [the] client application affili-  
10 ated with the un-recognized ink strokes of the ink phrase, associating the reference con-  
11 text with the ink strokes.

1 17. (Original) The method of claim 16 wherein the step of organizing comprises the steps  
2 of:

3       examining the ink information to determine whether an ink phrase termination  
4 event has occurred; and

5       in response to the occurrence of an ink phrase termination event, segregating the  
6 ink strokes received prior to the termination event in a designated ink phrase data struc-  
7 ture.

1 18. (Currently amended) The method of claim 17 ~~wherein the ink information entered at~~  
2 ~~the tablet is associated with a client application, the method~~ further comprising the step of  
3 ~~optionally~~ passing the un-recognized ink strokes of the respective ink phrase to the client  
4 application in response to the ink phrase termination event.

1 19. (Canceled).

1 20. (Currently amended) The method of claim 17 ~~16~~ wherein the reference context is as-  
2 sociated with the respective ink phrase by appending the reference context to the desig-  
3 nated ink phrase data structure.

1 21. (Currently amended) The method of claim 17 ~~wherein the ink information enter at the~~  
2 ~~tablet is associated with a client application, the method~~ further comprising the steps of:  
3       generating one or more recognition hypotheses for the ink strokes of the ink  
4 phrase data structure; and  
5       passing the one or more recognition hypotheses to the client application together  
6 with the respective reference context.

1 22. (Original) The method of claim 17 wherein the ink information from the input tablet  
2 further includes out-of-proximity data which corresponds to the pen being lifted above a  
3 surface of the tablet, the method further comprising the steps of:

4           examining the ink information to detect out-of-proximity data;  
5           identifying the occurrence of an ink phrase termination event in response to de-  
6       tecting out-of-proximity data.

1       23. (Currently amended) The method of claim 17 wherein ~~the ink information entered at~~  
2       ~~the tablet is associated with a client application, and~~ the client application defines a form  
3       for display on the tablet, the form having one or more data entry fields for receiving  
4       handwritten information, the method further comprising the steps of:  
5           receiving a set of bounding coordinates established by the client application for  
6       the one or more data entry fields;  
7           comparing the ink information from the input tablet with the bounding coordi-  
8       nates of the one or more data entry fields; and  
9           identifying the occurrence of an ink phrase termination event in response to de-  
10      tecting ink information moving outside of the bounding coordinates for at least one of the  
11      one or more data entry fields.

1       24. (Currently amended) The method of claim 17 wherein the computer system includes  
2       at least one recognition engine, the method further comprising the steps of:  
3           ~~optionally~~ configuring the recognition engine to apply a word segmentation model  
4       to the ink strokes as they are organized; and  
5           identifying the occurrence of an ink phrase termination event when the word seg-  
6       mentation model determines that a given ink stroke is part of a new word relative to an  
7       immediately prior ink stroke.

1       25. (Original) The method of claim 17 further comprising the steps of:  
2           initiating a time-out mechanism upon receipt of each ink data point; and  
3           identifying the occurrence of an ink phrase termination event when the time-out  
4       expires prior to receiving a next sequential ink data point.

1 26. (Original) The method of claim 25 wherein the ink information from the input tablet  
2 further includes out-of-proximity data which corresponds to the pen being lifted above a  
3 surface of the tablet, the method further comprising the steps of:

4       examining the ink information to detect out-of-proximity data;  
5       identifying the occurrence of an ink phrase termination event in response to de-  
6 tecting out-of-proximity data.

1 27. (Currently amended) A computer readable medium containing executable program  
2 instructions for organizing ink information that is generated by a pen-based input tablet  
3 as a pen moves across the tablet and is associated with a client application, the executable  
4 program instructions comprising program instructions for:

5       receiving the ink information generated by the input tablet;  
6       identifying when the pen is lifted from the tablet so as to organize the ink infor-  
7 mation into corresponding ink strokes;

8       examining the ink information to determine whether an ink phrase termination  
9 event has occurred;

10       in response to the occurrence of an ink phrase termination event, segregating the  
11 ink strokes received prior to the termination event in a designated ink phrase data struc-  
12 ture; and

13       in response to receiving a reference context from the client application affiliated  
14 with the un-recognized ink strokes of the ink phrase, associating the reference context  
15 with the ink strokes.

1 28. (Currently amended) The computer readable medium of claim 27 ~~wherein the ink in-~~  
2 ~~formation entered at the tablet is associated with a client application~~, the medium further  
3 comprising program instructions for passing the un-recognized ink strokes of the respec-  
4 tive ink phrase to the client application in response to the ink phrase termination event.

1 29. (Original) The computer readable medium of claim 28 further comprising program  
2 instructions for, in response to receiving an indication that the client application has con-  
3 sumed the un-recognized ink strokes, blocking recognition of the ink strokes.

1 30. (Canceled)

1 31. (Previously presented) The computer readable medium of claim 27 wherein the refer-  
2 ence context is associated with the ink strokes by appending the reference context to the  
3 designated ink phrase data structure.

1 32. (Currently amended) The computer readable medium of claim 27 ~~wherein the ink in-~~  
2 ~~formation entered at the input tablet is associated with a client application, the computer~~  
3 ~~readable medium~~ further comprising program instructions for:  
4       generating one or more recognition hypotheses for the ink strokes of the ink  
5 phrase data structure; and  
6       passing the one or more recognition hypotheses to the client application.

1 33. (Original) The computer readable medium of claim 32 further comprising program  
2 instructions for:  
3       in response to receiving a reference context from the client application affiliated  
4 with the un-recognized in strokes of the ink phrase, associating the reference context with  
5 the ink strokes; and  
6       in response to a request from the client application, returning the reference con-  
7 text to the client application along with the one or more recognition hypotheses.

1 34. (Original) The computer readable medium of claim 32 wherein the client application  
2 establishes a recognition context in response to receiving the un-recognized ink strokes of  
3 the ink phrase and the program instructions from generating one or more recognition hy-



4 potheses further comprise program instructions for utilizing the recognition context estab-  
5 lished by the client application.

1 35. (Original) The computer readable medium of claim 27 wherein the program instruc-  
2 tions for examining comprise program instructions for:

3 initiating a time-out mechanism upon receipt of each ink data point; and

4 identifying the occurrence of an ink phrase termination event when the time-out  
5 expires prior to receiving a next sequential ink data point.

1 36. (Original) The computer readable medium of claim 35 wherein the ink information  
2 further includes out-of-proximity data which corresponds to the pen being lifted above a  
3 surface of the tablet, and the program instructions for examining further comprise pro-  
4 gram instructions for:

5 examining the ink information to detect out-of-proximity data;

6 identifying the occurrence of an ink phrase termination event in response to de-  
7 tecting out-of-proximity data.